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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,808	03/26/2004	Boris A. Maslov	76897-018CIP6	7953

61263 7590 10/17/2007

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EXAMINER	
COLON SANTANA, EDUARDO	
ART UNIT	**PAPER NUMBER**
2837	
MAIL DATE	**DELIVERY MODE**
10/17/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No.	Applicant(s)	
	10/809,808	BORIS MASLOV ET AL.	
	Examiner	Art Unit	
	Eduardo Colon Santana	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 June 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☒ Other: *Detailed Action*.

DETAILED ACTION

1. Applicant's response filed on 6/28/2007 have been received and entered in the case.

2. Applicant's responses with respect to the claims have been considered but they are not persuasive. See Response to Arguments below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmitz et al. U.S. Patent No. 6,622,804 in view of Heidelberg et al. U.S. Patent No. 4,754,207 and further in view of Mongeau U.S. Patent No. 5,917,295.

Referring to claims 1 and 2, Schmitz et al. discloses a hybrid electric vehicle having two or more wheels and one or more electric motors and/or generators, but does not explicitly describe that the at least one motor and/or generator is an adaptive electric machine in which two or more electromagnetic power circuits are sufficiently isolated to substantially eliminate electromagnetic and electrical interference between the circuits. However, Heidelberg et al. discloses a rotary electric motor having an electromagnet with adjacent groups of electromagnets having different switching phases (electromagnetic power circuits) (see figure 1 and respective portions of the specifications). Heidelberg further discloses that the electric motor includes a stator (6) and rotor (4), wherein the stator comprises a plurality of stator core elements (12) being arranged in groups (22), being associated with a corresponding one of the phases (electromagnetic power circuits) of the electric motor (see Col. 2, lines 22-33). Additionally, Heidelberg et al. clearly describes each

of the groups being structurally separated and having magnetic material (see Col. 9, lines 20-32) magnetically isolated and separated from other groups (see figure 1 and Col. 2, lines 17-25). However, Heidelberg et al. does not explicitly describe the controller which is used to control electrical flow in each group being independently controllable of each other phase, thereby establishing relative rotation between rotor and stator. On the other hand, Mongeau disclose an improved motor drive system having a plurality of series connected H-bridges (see figures 1, 7 and respective portions of the specification), wherein each phase of the motor is controlled independently of each other and is believe to control the electric flow in one phase with a parameter different from that another phase.

Since Schmitz et al., Heidelberg et al. and Mongeau are in the same field of endeavor, the purpose disclosed by Heidelberg and Mongeau would have been recognized in the pertinent art of Schmitz et al.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have each phase controlled independently of each others phase by a controller as taught by Mongeau within the teaching of Heidelberg et al. for the application of an electric vehicle for the purpose of reducing switching losses and to reconfigure each motor phase winding (electromagnetic power circuit) at various operating modes, optimizing the speed of the motor at different loads (dynamic selection) to increase efficiency.

Even though Schmitz, Heidelberg and Mongeau are silent on the torque-to-weight ratio (20 Nm/kg), this design parameter is an obvious implementation in the structure of the motors being used. It is well known in the art wherein motors are being used on vehicle propulsion systems that the torque-to-weight ratio differ from one motor to another in accordance with the speed, voltage and/or other variables require to operate at desire efficiency.

It would have been an obvious matter of design choice to one having ordinary skill in the art at the time the invention was made to claim a specific torque-to-weight and torque-to-volume ratio, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. See In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)

As to claims 3-5 and 8-10, Schmitz et al. discloses in figure 1, an internal combustion engine (ICE) 300 connected to an electric generator (310) arranged in a series hybrid configuration. It would have been obvious to also include a fuel cell arranged in a series hybrid configuration, since this is an additional source to produce electricity from external supplies of fuel and oxidant (i.e. Hydrogen as fuel and oxygen as oxidant).

Referring to claims 6, 7, 11 and 12, Schmitz et al. discloses a in figure 3, an electric motor 50 and 60, each having electromagnetic circuits (phases) being powered by its own power supply (U_B). In addition depicts an internal combustion engine (ICE) (300), a central controller (200) which controls the operation of the motors, the

battery and the ICE and has a master control panel (fig 6) and a programmable logic controller (220) that will get the input from an onboard user interface (25) (see Fig. 6).

Response to Arguments

5. Applicant's arguments filed on 6/28/2007 have been fully considered but they are not persuasive.

It is believed that the prior art of record reads on the claims as they have been presented.

With regards to applicant's remarks (see page 5, par. 2) that the applied references, alone or in combination, fails to show, describe, teach or suggest a vehicle having a motor with electromagnetic power circuits with a stator with stator core elements in one group being structurally and electromagnetically separated or isolated from the stator core elements in each other group to substantially eliminate electromagnetic and electrical interferences is not persuasive. After carefully reviewing the Heidelberg ('207) reference, Heidelberg does disclose in col. 5, lines 35-42: "The individual electromagnets 12 have bases 32… …Bases 32 do not meat at the boundary between each group 22 and the adjacent group 22, so that there is a disconnection of the magnetic circuit here." However, applicant has misinterpreted the word "here". After carefully reviewing figure 1 and 3, Heidelberg et al. depicts group (22), wherein each group contains at least five electromagnets (12) having a base (32), in which each base is electromagnetically connected to the other bases (32) of the remaining electromagnets in the same group (emphasis added), and there is a

disconnection of the magnetic circuit here, but with another group (22) (emphasis added).

With respect to applicant's remarks (page 6, par. 2), that Heidelberg fails to show or describe a stator with stator core elements in one group being structurally separated from the stator core elements in each other groups is not persuasive. After carefully reviewing the Heidelberg ('207) reference, Heidelberg does show that each group (22) is structurally separated from the other groups (22) (see figure 1 and 3) gap (40) shows this separation.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eduardo Colon

Santana whose telephone number is (571) 272-2060. The examiner can normally be reached on Monday thru Thursday 6:30am - 3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on (571) 272-2800 X.37. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Eduardo Colon Santana
Patent Examiner
Art Unit 2837

ECS
October 01, 2007

LINCOLN DONOVAN
SUPERVISORY PATENT EXAMINER